Effect Of WIC Participation On VLBW Infants Among Medicaid Participants In Michigan

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Objectives

- Learn the incidence of VLBW in Michigan's Medicaid population.
- Illustrate the benefits of linking data from various sources.
- Assess the effect of prenatal WIC participation on birthweight.

Background

- Very low birthweight (VLBW) infants are:
  - infants born weighing 1500g/ lbs or less
  - usually born pre-term (<37 weeks gestation)
  - 200 times more likely to die in their first month compared to normal birthweight infants*
  - if they survive, more likely to suffer adverse physical health outcomes such as cerebral palsy, mental retardation, deafness, and blindness

*Kiely JL, Brett KM, Yu S et al.Low Birth Weight and Intrauterine Growth Retardation. In: LS Wilcox; JS Marks, editors, translator and editor From Data to Action: CDC's Public Health Surveillance for Women, Infants, and Children: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention; 1994; p. 185-202.

What's WIC?

The Special Supplemental Nutrition program for Women, Infants, and Children (WIC) is a federally-funded program that aims to improve the health outcome of low-income, nutritionally at-risk women and young children. It accomplishes providing supplemental nutritious food, breastfeeding and nutrition counseling; and referring participants to additional health and social services.

Background: Previous studies

- North Carolina: a study published in 1993 found:
  - that prenatal WIC participation was associated with a significant reduction in both LBW and VLBW, and
  - benefits were more pronounced for Black than for White participants.(Buescher PA et al.). (1993)
- Massachusetts: A case-control study, in which WIC participants were pair-matched, to controls found:
  - small improvement in overall mean birth characteristics, and
  - larger reductions for categorical pregnancy outcomes. (Kotelchuck M et al.) (1984)

Background: Previous studies

- New York State: Estimates showed that longer prenatal WIC participation was associated with a significant positive effect on birth outcome for all groups studied. (Lazariu-Bauer V et al.)(2004)
- Michigan: The odds of small-for-gestational age infants decreased with increasing length of WIC enrollment. (Ahluwalia I et al.)(1998)

Study Question

Does prenatal WIC participation reduce the odds of VLBW infants in the Medicaid population?

Methods & Statistical Analysis

- Michigan's Medicaid, WIC, and Vital Records information was linked within the state's data warehouse.
- Only records for primipara Medicaid recipients who delivered a live born *singleton* infant in 2002 were included in the final dataset

Methods & Statistical Analysis

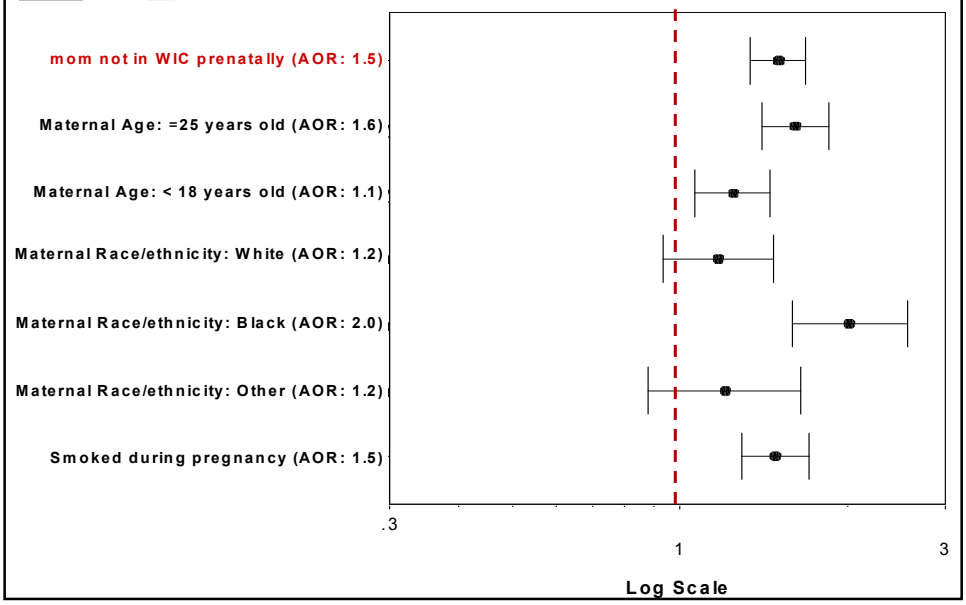
- To that final dataset we preformed: univariate, bivariate, and multivariate analysis
  - Univariate Analysis
    - Prevlances
  - Bivariate Analysis
    - Prevalences of VLBW stratified by:
      - Maternal age
      - Maternal race/ethnicity
      - Adequacy if PNC
      - Smoking during pregnancy
  - Multivariate
    - Adjusted odds ratios via logistic regression

Methods & Statistical Analysis

- Variables included in the *initial* model:
  - **In WIC**
  - **Maternal age**
  - **Maternal race/ethnicity**
  - **Adequacy of PNC utilization**
  - **Smoking during pregnancy**
- Variables that made it to the *final* model:
  - **In WIC**
  - **Maternal age**
  - **Maternal race/ethnicity**
  - **Smoking during pregnancy**

Adequacy of PNC utilization did not meet the 0.05 significance level for entry into the model.

Results



Summary

- The odds of delivering a VLBW infant is higher among women who did not participate in WIC prenatally.
- Factors that were found to be significantly associated with an increased odds of a VLBW infant delivery are:
  - Extremes in maternal age (<18 years and >25 years)
  - Non-Hispanic Black race
  - Smoking during pregnancy

Limitations

- Since maternal nutrition influences fetal growth directly, weight-for gestational age may be a better indicator of the effect of WIC participation.
- Several studies have showed that there are differences between eligible women who participate in WIC and eligible women who do not.
  - *Not adjusting for these confounders can bias results.*
- Smoking status is known to be underreported in birth certificate information.

Conclusion & Discussion

- Eligible women should be to enroll as soon as they think they are pregnant
- Partnership between WIC and other program that ameliorate adverse maternal behaviors
- Collect and include information about the difference between eligible WIC and non-WIC participants

Thank you!

Are there any questions?